

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A method of adjusting the dynamics of an audio track, comprising:

deriving at least two parameters of a transfer function from a statistical distribution of levels encountered over all frames of ~~in~~ the audio track;

deriving, from the transfer function, a time-varying gain to modify the statistical distribution of levels of the audio track; and

applying the time-varying gain to the audio track to obtain a resulting audio track,

wherein the transfer function comprises a multi-line compression transfer function having one or more compression thresholds, and

wherein the parameters include the one or more compression thresholds that are derived from a fractional measure of a number of the frames measured over all the frames of the audio track at one or more predetermined levels.

2. (Previously Presented) The method of claim 1 wherein the step of deriving the transfer function comprises:

specifying a desired statistical dynamics distribution; and

deriving the parameters of the transfer function from the metadata and from the desired statistical dynamics distribution such that a final statistical dynamics distribution encountered in the resulting audio track after application of the time-varying gain is similar to the desired statistical dynamics distribution.

3. (Original) The method of claim 1 wherein the step of deriving the time varying gain comprises:

specifying a desired overall loudness for the audio track;

deriving an estimate of the loudness of the resulting audio track from the metadata and from an initial estimate of the time-varying gain;

deriving a correction factor from the desired overall loudness and from the estimate of the loudness of the resulting audio track; and

applying the correction factor to the initial estimate of the time-varying gain to obtain the time-varying gain.

4. (Currently Amended) The method of claim 1 wherein the step of deriving the time varying gain comprises:

deriving, from histogram data of levels encountered in the audio track, an original dynamic spread value representing a spread of the levels encountered over all the frames in the audio track;

performing a comparison between the original dynamic spread value and a desired dynamic spread value; and

deriving a parameter for the transfer function from the comparison.

5. (Currently Amended) The method of claim 1 wherein the step of deriving parameters comprises:

determining a slope of a segment of a the multi-line compressor transfer function; and

determining a threshold between two segments of the multi-line compressor transfer function.

6. (Original) The method of claim 5 wherein the step of determining the slope comprises:

applying a test compression scheme to the histogram data to obtain test histogram data, the test compression scheme including a test slope;

determining a test dynamic spread value from the test histogram data; and

deriving the slope based on a comparison of the original dynamic spread value, the desired dynamic spread value and the test dynamic spread value.

7. (Currently Amended) The method of claim 6 wherein the slope for segments of the multi-line compressor transfer function is determined using interpolation.

8. (Currently Amended) The method of claim 6 wherein the slope for segments of the multi-line compressor transfer function is determined using iteration.

9. – 10. (Cancelled)

11. (Currently Amended) The method of claim 4 wherein the parameters include a level of a threshold separating two segments of a the multi-line compressor transfer function.

12. (Currently Amended) The method of claim 4 further comprising:

specifying a fraction representing a proportion of the audio track to which compression will be applied;

deriving from the histogram data a loudness value corresponding to a point above or below which the fraction of the histogram data is located; and

using the loudness value as a threshold separating two segments of a the multi-line compressor transfer function.

13. (Original) The method of claim 6 further comprising:

deriving a test overall loudness value from the test histogram data;

deriving a fixed post-gain value from the test overall loudness value and from a desired loudness value; and

applying the time varying gain and the fixed post-gain value to the audio track.

14. (Currently Amended) A method of adjusting the loudness of an audio track including a plurality of audio frames, the method comprising:

obtaining loudness values for each of the plurality of audio frames;

applying a weighting factor to each of the loudness values to obtain a plurality of weighted loudness values;

aggregating the weighted loudness values to obtain an overall loudness value for the audio track;

comparing the overall loudness value to a desired loudness value; and

applying a gain to the audio track based on the comparison between the overall loudness value and the desired loudness value.

wherein applying the gain comprises compressing with a multi-line compression transfer function derived from statistical frequency data, the multi-line compression transfer function including one or more compression thresholds that are derived from a fractional measure of a number of the frames measured over all the frames of the audio track at one or more predetermined levels.

15. (Original) The method of claim 14 wherein the weighting factor to be applied to a particular loudness value is derived from the particular loudness value itself.

16. (Original) The method of claim 15 wherein the weighting factor for a particular loudness value comprises an emphasis parameter raised to a power of the particular loudness value.

17. (Original) The method of claim 14 wherein the weighted loudness values of the plurality of audio frames are aggregated using a histogram.

18. (Currently Amended) A method of altering a dynamic range of an audio track comprising a plurality of audio frames each having a loudness value, the method comprising:

obtaining original statistical frequency data for the audio track, the original statistical frequency data comprising a statistical distribution of levels encountered over all frames of the audio track;

applying a test compression scheme to the original statistical frequency data to obtain test statistical frequency data;

deriving from the original statistical frequency data and the test statistical frequency data an actual compression scheme; and

compressing the audio track using the actual compression scheme,

wherein compressing using the actual compression scheme comprises compressing with a multi-line compression transfer function derived from the statistical frequency data, the multi-line compression transfer function including one or more compression thresholds that are derived from a fractional measure of a number of the frames measured over all the frames of the audio track at one or more predetermined levels.

19. (Original) The method of claim 18 further comprising:

obtaining a mean loudness deviation value from the loudness values for the plurality of audio frames;

determining a test mean loudness deviation value from the test statistical frequency data;
and

comparing the mean loudness deviation value and the test mean loudness deviation value
with a desired mean loudness deviation value when deriving the actual compression scheme.

20. (Currently Amended) A method of processing an audio track comprising:

obtaining statistical frequency data for the audio track, the original statistical frequency data comprising a statistical distribution of levels encountered over all frames of the audio track;

applying a compression scheme to the statistical frequency data to obtain an estimate of statistical frequency data that would result from applying the compression scheme directly to the audio track;

determining an estimated overall compressed loudness value from the estimate of statistical frequency data;

compressing the audio track using the compression scheme to obtain a compressed audio track; and

applying a gain to the compressed audio track based on a comparison between the estimated overall compressed loudness value and a desired loudness value

wherein compressing using the compression scheme comprises compressing with a multi-line compression transfer function derived from the statistical frequency data, the compression transfer function including one or more compression thresholds that are derived from a fractional measure of a number of the frames measured over all the frames of the audio track at one or more predetermined levels.

21. (Original) The method of claim 20 wherein the overall compressed loudness value is obtained by:

obtaining a plurality of individual loudness values from the estimate of statistical frequency data;

applying a weighting factor to each of the individual loudness values to obtain weighted loudness values; and

aggregating the weighted loudness values to obtained the overall compressed loudness value for the audio track.